

UPEC – UltraPortable EC USB Tester

Sensima Inspection’s “UltraPortableEddy Current USBTester”(UPEC-SF3KU4) is very compact and easy-to-use, yet it integrates advanced features such as multifrequency, multichannel, and digital communication.

The UPEC tester can be used together with your favorite processing platform, whether it is a tablet, a laptop or a rugged computer. It includes in a very small footprint all the required electronics to perform basic and even advanced EC testing tasks. Its low power consumption enables it to be powered by any tablet or USB battery pack. As a user, you are not locked-in with a proprietary screen or battery type.

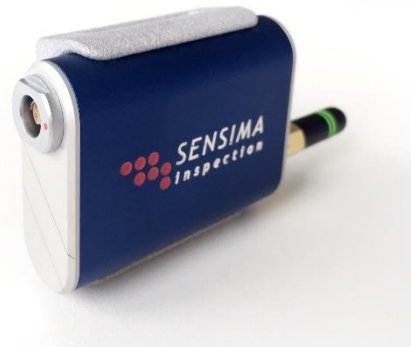
An anodized aluminum body and rugged connectors ensure the robustness required for in-field applications. UPEC’s testers have demonstrated outstanding durability when used in various applications such as nuclear power, oil and gas, and underwater inspections.

Being the most compact EC tester in its category, it is highly recommended for space constrained, rope access inspections or to be attached to mobile autonomous scanners. Long-distance communication protocols - up to 1.5 km - are available upon request.

Intuitive and practical acquisition software is provided with the tester. All the features of conventional testers are provided in easy to use retractable panel optimized for tactile devices. Test settings are saved and retrieved easily via windows tiles. Both html and word reports can be generated from within the software interface.

Features Highlights

- Plug-and-play: connect to USB and start measuring
- Both direct impedance and reflection measurements
- Multifrequency (time multiplexed)
- Directly compatible with most of your legacy eddy current probes
- Ready for self-test on provided notches
- Field proven robustness



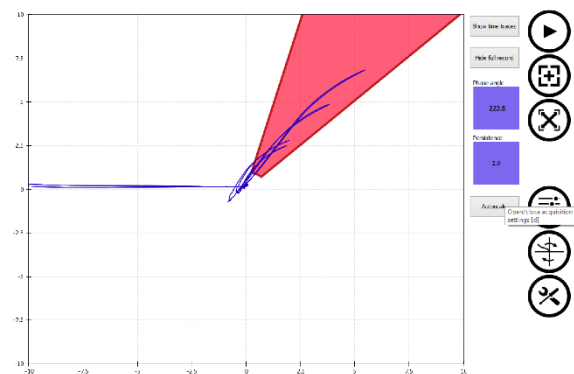
Compact and robust:

Rugged Fischer and Amphenol connectors, anodized aluminum body.



Versatile:

Compatible with most portable devices and your legacy probes. Custom probes on demand.



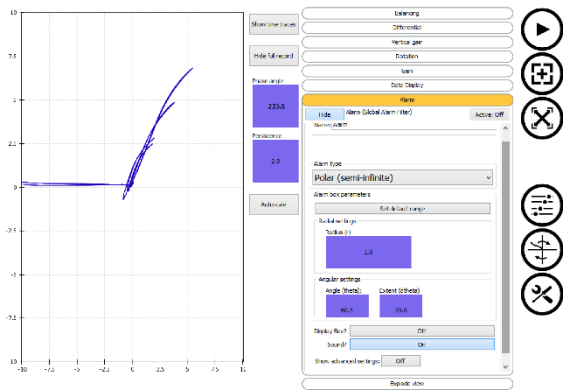
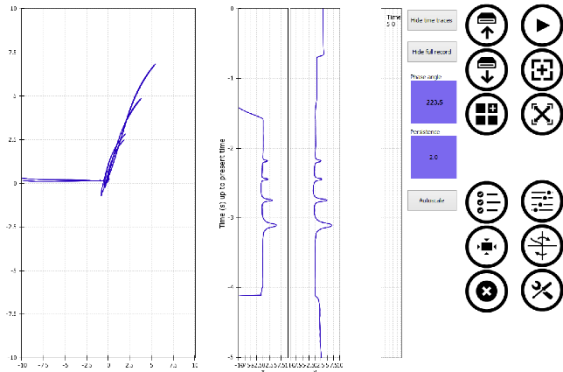
Intuitive and easy-to-use software:

Ready to measure within seconds.



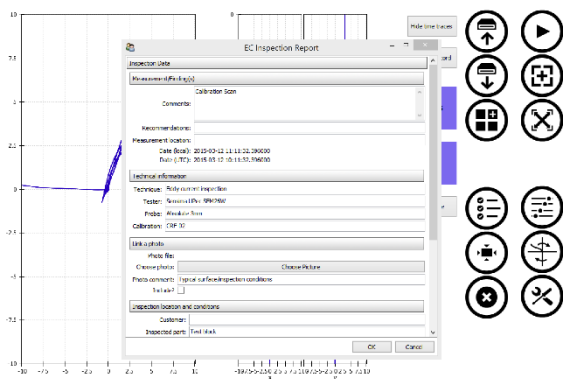
All functions at your fingertips:

All advanced functions are available in one click or tap. Traces can be displayed or hidden.



Advanced filter settings:

Completely configurable signal processing chain and alarms. Phase angled gains (horizontal and vertical) can be altered on each channel individually.



Report generation:

A word and/or html report is generated each time the data is saved.

Customization

- Wireless with long-range Bluetooth communication
- Other communication protocols available (RS-232, RS-422 for long-distance)
- Other connectors for compatibility with your set of probes on request.
- Can be delivered without packaging to be embedded in another inspection system (e.g. an ROV)

UPECView Acquisition Software

The software provides touch access to all the instrument and filter settings, but it can be used on a normal PC as well (Windows 8 or later). You benefit from all the modern features of windows, such as remote access for troubleshooting and speech recognition.

No dongle: The UPECView software can be installed on any PC in your company to perform remote data processing and assessment.

Presets: Store all instrument and filter settings for all your inspection tasks and recall them simply by tapping on a windows tile.

Reporting: Generate a Microsoft Word and/or HTML report next to your saved data^b. The report contains all the data processing settings.

Ordering information

Product number: UPEC-SF3KU4

Related documents

Sensima Inspection application note SIAP-002, "Tubing testing with UPEC"

^aThe acquisition software should run under Windows XP SP2, but some reporting functions may not be available



Technical Details

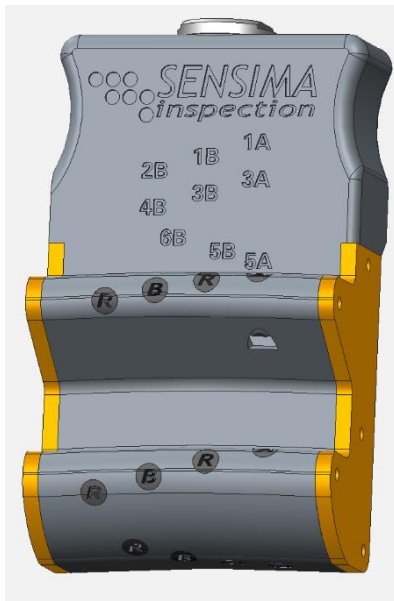
Type of instrument	General purpose eddy current instrument
Power supply	5 V USB powered, 100 mA typ. current draw
Safety	CE, FCC Part 15B, RoHS,
Technology	<p>Signal proc.: Analogue preamplification and demodulation Digital outputs and filtering</p> <p>Settings: Manual, remote controlled, stored, preset</p> <p>Outputs: Digital components outputs, optional TTL alarms</p> <p>Single frequency, multifrequency (time multiplexed)</p>
Physical presentation	<p>Weight: 90g (3.2 oz.)</p> <p>Size: 45 x 60 x 18 mm³ (1.8 x 2.4 x 0.7 in³)</p> <p>Connectors: USB mini A socket, Fischer 102 4-pin</p>
Environmental effects	<p>Warm-up time: 0s for typical use 200s for full precision</p> <p>Ingress protection: IEC 60529 CODE IP67</p> <p>Operating temp.: -40 °C to 60 °C</p> <p>EMC compatibility: Compliant with CE, FCC Part 15B</p>
Generator unit	<p>Single frequency, multifrequency (time multiplexed)</p> <p>Frequency range: 20 kHz to 10 MHz 1 Hz to 10 MHz with reduced data rate</p> <p>Current mode: 1-10 mA, up to 9 V p-p > 10000 Ω source impedance</p> <p>Voltage mode: 9 V p-p, 90 mA maximum 50 Ω impedance</p>
Input Stage	<p>Input impedance: 100 kΩ</p> <p>Max. input voltage: 5V</p>
Balance	<p>Hardware balancing before the vector amplifier</p> <p>Software balancing after A/D conversion</p>
HF amplification	<p>Gain setting range: 2 - 20, 2.9 dB steps</p> <p>Bandwidth: 10 MHz</p> <p>Linear input range: 1.0 V</p>
Demodulation	<p>Bandwidth: 10 MHz</p> <p>Wave shape: square</p>
Vector amplification	Gain setting range: 1 – 100, 2.7 dB steps
LF filtering	Digital filters
Phase setting	<p>Range: 0 – 360°</p> <p>Step size: 0.05°</p>
Digitized outputs	Data protocol: USB 2.0 full speed and/or long range Bluetooth
Digitization	<p>Digitization technique: Sigma-delta</p> <p>Sampling rate: 375 Hz to 3 kHz</p> <p>A/D resolution: 14 to 16 bits</p> <p>Stage: After vector amplification and balancing</p>



Probes and Sensors

The UPEC is supplied within a kit with all what is required to perform your first tests: accessories (cabling and software), a tablet PC with the UPECView software installed and a probe. The probe shipped with the instrument can be chosen for your specific application. If requested, additional probes are charged separately.

Probes for GT groove inspection



Based on your inspection specification, we design and manufacture Eddy Current probes for the inspection of Gas Turbine grooves. The probe casing matches the geometry of the groove so that a full inspection can be ensured with a simple linear manual scan without wobbling (only one degree of freedom along the circumferential direction). Our solution provides accurate and reproducible signals, advantageously replacing “pencil – probes” inspections usually performed in this industry to inspect grooves.

The probe is instrumented with several coils therefore achieving a significant coverage in only one pass without compromise on required sensitivity (typically 3mm long, 0.3mm deep cracks).

The probe can be operated with our ultra-compact UPEC testers compliant with ISO 15548 NDT inspection standard. The instrument generates open format data (csv among other) and do not require dongles or recurring fees. Alternatively, the probes can be connected to other brand’s equipment.

Customer value

1. Reproducible and accurate detection of surface breaking or near surface flaws (no wobble)
2. Compliant with ISO 15548
3. Various coil configurations (absolute, send receive)
4. Most compact inspection system on the market (Probe - UPEC tester - Computer for UPECView software), “cabin luggage” compatible
5. Open data format and no dongle required (if used with UPEC tester)
6. Compatible with other brand’s equipment
7. Competitive price

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